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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/564,039

01/10/2006

Makoto Fujiwara

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EXAMINER

CHANDRAKUMAR, NIZAL S

ART UNIT

PAPER NUMBER

1625

MAIL DATE

DELIVERY MODE

12/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/564,039

Applicant(s)

FUJIWARA ET AL.

Examiner

Nizal S. Chandrakumar

Art Unit

1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) 2-6 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This application filed 01/10/2006 is a 371 of PCT/JP04/09660 07/07/2004.

Claims 1-6 are before the Examiner.

Applicants request the acknowledgement of receipt of papers filed under Section 119. The FRPRs 2003-273687 and 2004-059280 were filed on 01/10/2006.

Election/Restrictions

Applicant's election with traverse of Group I claims in the reply filed on 12/13/2007 is acknowledged. The traversal is on the ground(s) that the cited art for lack of unity determination neither anticipates nor makes applicants claims obvious. This is not found persuasive because of the ambiguity (see below rejection under *Claim Rejections – 35 USC § 112-second paragraph*). The claims are drawn to compounds with undefined substituents and as such the tert.amine moiety pictured in the claim may not have any basicity at all. Thus the nitrogen could have the basicity of the nitrogen of the benzothiazole. Further compounds of the cited prior art and the instant claims are drawn to chromenone structure. In addition, it is noted that based on the subject matter of the copending applications 10/498477 and 11/698910, the core chemical structure imparting the properties necessary for the intended applications is the chromenone moiety. Further chromenone and triphenylamines are well known groups in organic chemistry and thus are not contribution over prior art. As such the cited prior art is relevant. A patent search for the compound would not be coextensive with the patent search for the generically recited limitations of the claims of Group 2 to 6.

The requirement is still deemed proper and is therefore made FINAL.

Claims 2-6 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12/13/2007.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named

inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

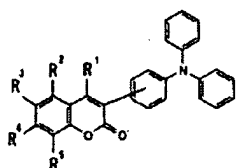
Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is drawn to a generic formula



containing two ring systems connected to each other. The point of attachment of chromenone ring system is defined but, there are three rings in the other component. It is unclear where the chromenone is connected to the possible 15 positions of the triphenylamine moiety. Likewise, it is stated that the variables R1 to R5 are substituents independent of each other; but except for H as one of the possible substituents, the rest of possibilities for these pictured substituents are not defined. Further, it is unclear if the 14 other positions of the triphenylamine group are substituted if so what are these substituents.

Thus the claims are vague and indefinite and it is unclear what applicant is seeking protection for.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any

person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for few of the compounds of the formula I, does not reasonably provide enablement for plethora of possible structures of compound of formula I. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Enablement is considered in view of the Wands factors (MPEP 2164.01 (a)). These include: (1) breadth of the claims; (2) nature of the invention; (3) state of the prior art; (4) amount of direction provided by the inventor; (5) the level of predictability in the art; (6) the existence of working examples; (7) quantity of experimentation needed to make or use the invention based on the content of the disclosure; and (8) relative skill in the art.

All of the factors have been considered with regard to the claim, with the most relevant factors discussed below:

The breadth of claims: The claims are drawn to compound of formula I with undefined substituents rendering the number of conceivable structures large.

The level of the skill in the art: The level of skill in the art is high. However, due to the unpredictability in the art, it is noted that each embodiment of the invention is required to be individually assessed for viability.

The amount of direction provided by the inventor and the presence or absence of working examples: The direction and working examples for making the compounds of the inventions is limited. Four working examples for making compounds are present on page 45-49 of the specification. The procedures

described are confusing. The starting materials and products are referred to at different pages with in the specification and it is unclear what product pertains to what example. The structure in page 47, aryl bromide is suggestive of Buchwald reaction for introducing the amino function; otherwise, the examples are unclear as to what the starting materials and or products are. There are 50 examples of structures present on pages 10-26 but the specification does not provide citations (commercial or literature) for procuring the starting materials usable that could substitute for the lack of working examples with respect to these compounds.

It is suggested that applicant provide chemistry scheme(s) for making compounds.

Because the disclosed compounds vary widely in their structure and functionality, it is unclear what specific embodiment would have the desired property. The properties of compounds of formulae 2 and 3 are presented on page 53 (Table). It is unclear whether one could obtain similar optical properties using compounds of formulae 37 and 45 which are substantially different in their structure.

The quantity of experimentation: For the reasons presented above, in order to utilize the invention as claimed, that is to make and use the claimed compounds, the skilled artisan would be presented with an undue amount of experimentation. The instant disclosure is broad and generic.

Genentech Inc. v. Novo Nordisk A/S (CA FC) 42 USPQ2d 1001, states, "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "[p]atent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

It is suggested that applicant provide:

A core structure and clear definition of the substituents on the core structure and their point of attachments.

Chemistry schemes (at the minimum generic chemistry schemes) and citation for procuring

starting materials.

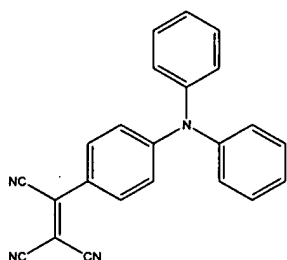
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

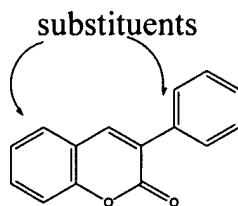
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bader et al. (Proceedings of SPIE-The international Society for Optical Engineering, 2001, Vol. 4461, pages 304-310) in view of Yoshio.(JP 57-088455).

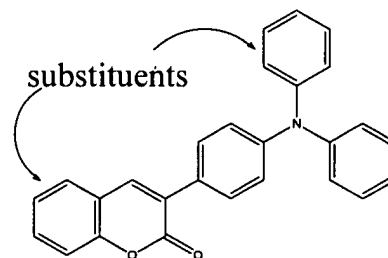
Bader et al. teaches the use of triphenylamine moiety as donor in the donor-acceptor (push-pull)polyenes in optics applications. In particular Bader et al teaches the following triphenylamine compound 4 on page 309.



Bader



Yoshio



Compound A Applicant

Bader does not teach chromenone-triphenylamine combination such as compound A.

Yoshio et al. teach chromenones B with substituents on the rings for charge transfer substances (see pages 3453 and 354).

All of the component parts are known in Bader et al. and Yoshio et al. The only difference is the combination of the 'elements' of Bader et al. and Yoshio et al. into a single molecule.

Thus, it would have been obvious to one having ordinary skill in the art to combine the teachings of these prior arts into single molecules, since the combination would result in compounds with

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predictable donor-acceptor properties such as the one useful in photo-induced electron transfer processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nizal S. Chandrakumar whose telephone number is 571-272-6202. The examiner can normally be reached on 8.30 am - 5 pm Monday- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached at 571-272-0867 or Primary Examiner D. Margaret Seaman can be reached at 571-272-0694. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Nizal S. Chandrakumar


D. MARGARET SEAMAN
PRIMARY EXAMINER